

Claims

1. Process for producing a metal-ceramic substrate, especially copper-ceramic substrate, in which (process) at least one metal foil (3', 4') at a time is applied to the surface sides of a ceramic layer or a ceramic substrate (2) using a high temperature bonding process and the metal foil (3, 4) is structured on at least one surface side for forming conductive tracks, contact surfaces, and the like, characterized in that after the high temperature bonding process at least one coating (5) of a brazing resist is applied to the metal surface of at least one metal foil (3', 4')) or at least one metal coating (3, 4, 3', 4').
2. Process as claimed in claim 1, wherein high temperature bonding is carried out at a temperature greater than 650°C.
3. Process as claimed in claim 1 or 2, wherein high temperature bonding is a direct bonding process.
4. Process as claimed in one of the preceding claims, wherein high temperature bonding is an active brazing process.
5. Process as claimed in one of the preceding claims, wherein at least one coating (5) of brazing resist is applied before structuring.
6. Process as claimed in one of the preceding claims, wherein at least one coating (5) of brazing resist is applied after structuring.
7. Process as claimed in one of the preceding claims, wherein the metal foils are copper foils and they are provided on the ceramic substrate (2) by means of the DCB process or the active brazing process.

8. Process as claimed in one of the preceding claims, wherein structuring of at least one metal foil (3', 4') takes place by means of masking-etching process and wherein at least one coating (5) of brazing resist is applied immediately after this structuring.

9. Process as claimed in one of the preceding claims, wherein structuring of at least one metal foil (3', 4') takes place by means of a masking-etching process using an etching resist and wherein at least one coating (5) of brazing resist is applied immediately before application of the etching resist.

10. Process as claimed in one of the preceding claims, wherein after applying the brazing resist coating (5) the metal of the metal coating is removed at least in the surface areas bordering this brazing resist coating (5).

11. Process as claimed in claim 10, wherein removal takes place by etching, for example using hydrogen peroxide, sodium persulfate, copper chloride or iron chloride.

12. Process as claimed in claim 10 or 11, wherein removal takes place with a thickness from 0.1 to 20 microns.

13. Process as claimed in one of the preceding claims, wherein before application of at least one brazing resist coating (5) cleaning of the metal surfaces, preferably by removing a surface area of the metal coatings, takes place.

14. Process as claimed in claim 13, wherein cleaning takes place by chemical removal and/or by plasma etching and/or by electrical etching and/or galvanic removal and/or by mechanical working, for example by brushing or grinding.

15. Process as claimed in claim 14, wherein chemical cleaning takes place using a hydrogen peroxide solution or a sodium persulfate solution.

16. Process as claimed in one of the preceding claims, wherein a surface metal coating (10) is applied to at least one surface area (8) of at least one metal coating, which area is produced preferably by removal and adjoins at least one brazing resist coating (5).

17. Process as claimed in claim 16, wherein the surface metal coating (10) is applied such that the surface which has been formed by this surface metal coating is level or roughly level with the surface of at least one brazing resist coating (5) or level or roughly level with the untreated surface underneath at least one brazing resist coating (5).

18. Process as claimed in claim 16, wherein the surface metal coating (10) is applied such that the surface which has been formed by this surface metal coating projects over the surface level of at least one brazing resist coating (5) or over the surface level of the untreated surface underneath at least one brazing resist coating (5).

19. Process as claimed in claim 16, wherein the surface metal coating (10) is applied such that the surface which has been formed by this surface metal coating is somewhat lower than the surface level of at least one brazing resist coating (5) or of the untreated surface underneath at least one brazing resist coating (5).

20. Process as claimed in one of the preceding claims, wherein an epoxide-based resist is used for the brazing resist coating and wherein the brazing resist coating cures thermally.

21. Process as claimed in one of the preceding claims, wherein at least one brazing resist coating has a thickness of 0.5 to 100 microns.

22. Process as claimed in one of the preceding claims, wherein at least one brazing resist coating (5) is structured in an area (5') for forming an optically readable code.